

What is claimed is:

1. An access control system comprising:

an operating system; and

an access control device for controlling access from each of one or more processes executed by the operating system to one of one or more devices, wherein:

each of the processes accesses one of the devices via a device file or one of device files corresponding to the one device; a plurality of device files may be generated for any one or more of the devices;

the operating system comprises:

device file generating means for generating a device file or device files for a route or each of routes through which each of the processes accesses one of the devices;

access rule setting means for setting access rules indicating methods for accessing device files for each of the routes; and

access control means for controlling access to each device file according to an access rule;

the access control device unifies access rules set for routes to a plurality of device files corresponding to a common device; and

the access control means controls access to each device file according to a unified access rule if the access rules have

been unified.

2. An access control device for controlling access from each of one or more processes to one of one or more devices, wherein:

each of the processes accesses one of the devices via a device file or one of device files corresponding to the one device;

a device file or device files are generated for a route or each of routes through which each of the processes accesses one of the devices;

access rules indicating methods for accessing device files are set for each of routes;

access to each device file is controlled according to an access rule; and

a plurality of device files may be generated for each of arbitrary ones of the devices, the access control device comprising:

access rule extracting means for extracting access rules set for routes to a plurality of device files corresponding to a common device; and

access rule deriving means for deriving a unified access rule for each device on the basis of the extracted access rules.

3. The access control device according to claim 2, wherein if a plurality of access rules extracted for each device are

different from each other, the access rule deriving means employs one of the plurality of different access rules as a unified access rule.

4. The access control device according to claim 2, wherein if a plurality of access rules extracted for each device are different from each other, the access rule deriving means derives a unified access rule on the basis of characteristics of files linked to the respective device files.

5. The access control device according to claim 2, wherein if a plurality of access rules extracted for a device are different from each other, the access rule deriving means employs one of the plurality of different access rules most restrictions on access to the device file as a unified access rule.

6. The access control device according to claim 2, wherein:  
the processes are executed by an operating system;  
each route exists in one or more directories managed by the operating system and consists of one or more files linked to each other between each process and each device file; and  
each access rule is set for a directory in which a file linked to a device file exists.

7. The access control device according to claim 2, wherein

each access rule indicates at least whether each of reading and writing on a device file by each of files linked to the device file is permitted or not.

8. The access control device according to claim 6, wherein:

an operating system stores the access rules;

the access rule extracting means extracts access rules set for routes to each of a plurality of device files corresponding to each common device from the stored access rules when the operating system is activated; and

the access rule deriving means derives a unified access rule for each device from the extracted access rules when the operating system is activated.

9. The access control device according to claim 2, wherein:

an operating system accepts alternation of an access rule to notify the access control device of the altered access rule;

the access rule extracting means extracts access rules set for routes to each of a plurality of device files relating to the altered access rule when notified of the altered access rule; and

the access rule deriving means derives a unified access rule for each device from the extracted access rules when notified of the altered access rule.

10. An access control method for controlling access from each of one or more processes to one of one or more devices, wherein each of the processes accesses one of the devices via a device file or one of device files corresponding to the one device, the access control method comprising the steps of:

generating a device file or device files for a route or each of routes through which each of the processes accesses one of the devices, a plurality of device files being generated possibly for each of arbitrary ones of the devices;

setting access rules indicating methods for accessing device files for each of routes;

extracting access rules that are set for routes to a plurality of device files corresponding to a common device;

deriving a unified access rule for each device on the basis of the extracted access rules; and

controlling access to each device file according to the unified access rule.

11. A program for controlling access from each of one or more processes to one of one or more devices, wherein each of the processes accesses one of the devices via a device file or one of device files corresponding to the one device, the program causing a computer to execute the steps of:

generating a device file or device files for a route or each of routes through which each of the processes accesses one

of the devices by each of the processes, the plurality of device files being generated possibly corresponding to any one or more of the devices;

setting access rules indicating methods for accessing device files for each of routes;

extracting access rules that are set for routes to a plurality of device files corresponding to a common device;

deriving a unified access rule for each device on the basis of the extracted access rules; and

controlling access to each device file according to the unified access rule.